RESEARCH

Cariboo Forest Region

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EXTENSION NOTE #8
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Estimating the Abundance of Arboreal Forage Lichens

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This Extension Note describes a new handbook that has been prepared to help field staff estimate lichen abundance for determining the forage value of a stand.

INTRODUCTION

Two distinct groups of caribou, *Rangifer tarandus,* live in British Columbia, and both are present in the Cariboo Forest Region. **Mountain caribou** inhabit the Quesnel Highland and Cariboo Mountains; **northern caribou** live in the west Chilcotin, particularly near the Itcha and Ilgachuz Mountains.

Mountain caribou spend much of the year in high elevation forests, and feed almost exclusively in winter on **arboreal lichen** (lichen growing on trees). They often contend with winter snowpack depths of 2-3 m, making other forage unavailable. Timber harvesting has advanced into mountain caribou range, and clearcutting removes all arboreal lichens by harvesting all trees. Lichens spread and grow slowly, and an estimated one or two hundred years are required before a new clearcut will supply arboreal lichen comparable to an uncut stand.

Northern caribou depend more on terrestrial (ground) lichens during the winter, but eat up to half of their forage as arboreal lichen. Biodiversity studies are also finding that arboreal lichen is valuable for other animals; for example, it is used as nesting materials by warblers and vireos.

HANDBOOK

The field guide insert was prepared to assist forest and wildlife managers in assessing the abundance and distribution of forage lichens for both mountain and northern caribou.

RESEARCH Section, Ministry of Forests, Cariboo Forest Region
200 – 640 Borland Street, Williams Lake, BC V2G 4T1 Phone (250)398-4345
Fax (250)398-4380 http://www.for.gov.bc.ca/cariboo/research/research.htm

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Use of the handbook will standardize the description of lichen abundance and provide information to help answer the following questions:

- Whether logging should proceed, and, if so:
- Where should it occur?
- How much area can be logged? and
- What is a suitable type of logging (silvicultural system)?

The handbook consists mainly of photographs to assist users in estimating the two main descriptors of lichen forage necessary for management decisions:

- **proportions** of the two types of lichen, *Alectoria* and *Bryoria*, and

- the overall **abundance** of lichen.

The first part of the handbook shows different proportions of these two hair-like lichens that resemble beards. *Alectoria sarmentosa* is a yellow-green colour and *Bryoria* spp. can be brown, greyish, or almost black. These two species should be recorded separately, as they may respond differently to alternative forest management practices.

The second and most important part of the handbook deals mainly with classifying lichen abundance. Lichen abundance is divided into three series, based on whether the lichens are growing on living or dead branches, or a combination of the two. Each tree is classified into one of six lichen abundance classes, which are based on the actual weight of *Alectoria* and *Bryoria* lichens on the tree. Only lichens below a height of 4.5 m on the trees are included in the rating, as this is estimated to be the maximum height caribou can reach when there is a deep, settled snowpack.

The six classes for each series are shown in detail, with high quality photographs illustrating class division points. By showing the handbook user the boundaries between lichen abundance classes, the handbook authors intend to simplify classification and improve the quality of estimates.

Although the handbook was primarily designed to quantify caribou forage, it can also be used to describe lichen for other applications - for example, arboreal lichen on mule deer winter range.

TRAINING

Training sessions for using the manual will be conducted in Winter 1994 after sample size testing and data analyses have been completed in the 1993 field season.

REFERENCE

Estimating the Abundance of Arboreal Forage Lichens, by H. Armleder, S. Stevenson and S. Walker. BC Ministry of Forests. Land Mgmt. Hdbk. Field Guide Insert 7. June 1992.

CONTACT

For more information, contact **Harold Armleder**, Wildlife Habitat Ecologist, at 398-4407, or **Michaela Waterhouse**, Assistant Wildlife Habitat Ecologist, at 398-4405.